Guide
for
Integrating Systems Engineering
into
DoD Acquisition Contracts

Version 1.0

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PREFACE

This *Guide for Integrating Systems Engineering into DoD Acquisition Contracts* supports the implementation of systems engineering (SE) policy initiatives by the Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)) stating that the application of "rigorous system engineering discipline is paramount to the Department's ability to meet the challenge of developing and maintaining needed warfighting capability." Primary references include the following USD(AT&L) memoranda:

- Policy for Systems Engineering in DoD, USD(AT&L), 20 February 2004,

- Policy Addendum for Systems Engineering, USD(AT&L), 22 October 2004

- Implementing Systems Engineering Plans in DoD – Interim Guidance, USD(AT&L), 30 March 2004).

The target audience for this guide is the Government program team responsible for (1) incorporating program technical strategy and technical planning into the Request for Proposal (RFP) and (2) performing pre-award functions, including source selection, as well as post-award contractor execution activities. The guide is of most use to the Program Manager (PM), the Lead (or Chief) Systems Engineer (LSE), the Contracting Officer (CO), and the solicitation team.

The primary purpose of this guide is to aid the PM and LSE to effectively integrate SE requirements into appropriate contracting elements in support of system acquisition; however, all Government and industry personnel involved in a program can benefit from this guide. The authors presume the reader is familiar with Department of Defense (DoD) governing acquisition directive and instruction (DoDD 5000.1, USD(AT&L), May 12, 2003, and DoDI 5000.2, USD(AT&L), May 12, 2003) and the *Defense Acquisition Guidebook* (DAG). For example, see DAG Chapter 2, Defense Acquisition Program Goals and Strategy. The guide also aids the CO in understanding a program's need for good SE requirements as part of any systems acquisition effort.

The guide focuses on the common competitive-type contract, both fixed-price and cost-reimbursable (see Federal Acquisition Regulations (FAR Part 16)), applying the RFP (FAR §15.203) approach; however, users may be able to tailor the technical aspects to support other acquisition approaches, such as sole source; purchase of commercial-off-the-shelf (COTS) products (e.g., software); information technology (IT); business systems or services; and others. The CO is responsible for all contracting aspects, including determining which type of contract is most appropriate. Nothing in this guide should be construed to change or add to the requirements of existing regulations, directives, instructions, and policy memos.

This guide applies to all phases of the acquisition life cycle (see DoD Life Cycle Acquisition Framework). For simplicity, however, it focuses on preparing for the important System Development and Demonstration (SDD) life cycle phase (i.e., post Milestone B). The content of the guide can be adapted and tailored for programs entering other acquisition life cycle phases (see DAG Chapter 4, Systems Engineering and DoDI 5000.2 for more details).

Furthermore, although this guide does not reiterate technical SE information found in the DAG or in the Systems Engineering Plan (SEP) Preparation Guide, it uses the DAG (and SEP guidance) as a basis for guidance noted here as particularly important. This guide does not elaborate on specialty engineering requirements (e.g., Logistics/Sustainment (including Material

Readiness (MR); see [DAG Chapter 5, Life Cycle Logistics](#)); Test and Evaluation (T&E) (see [DAG Chapter 9, Integrated Test and Evaluation](#)); Modeling and Simulation (M&S); [Information Assurance](#) (IA); and Architecture (see [DAG Chapter 7, Acquiring Information Assurance and National Security](#)). Each program is unique and needs to consider which technical requirements and solicitation evaluation criteria are important to include in the RFP.

This guide (1) includes brief information on the acquisition and contracting process focused on technical planning and subsequent execution, (2) provides examples of technical inputs needed for the solicitation and source selection, and (3) suggests activities immediately following contract award to assist transition into the SDD phase. The examples and suggestions in this guide should be considered subject to the direction of the CO, Source Selection Authority, or other higher management.

A key technical objective for the program during this pre-Milestone B activity is to provide the potential offerors' information describing the Government's program technical approach as reflected in the Government-developed SEP ([DAG § 4.5.1](#)). Also provided, as available, would be the Integrated Master Plan (IMP; [DAG § 4.5.2](#)) and Integrated Master Schedule (IMS; [DAG § 4.5.3](#)) to form a baseline for the offerors to respond to the RFP. Although the DoDI 5000.2 does not require approval of the SEP until Milestone B, this guide stresses the importance of early technical planning (and associated documentation in the SEP) so that the Government's technical strategy can be reflected in the RFP. Other key artifacts with technical content (e.g., Initial Capabilities Document (ICD), Analysis of Alternatives (AoA) results, Capabilities Development Document (CDD), Test Evaluation Strategy (TES) and/or Test and Evaluation Master Plan (TEMP), preliminary System Performance Specifications (SPS)) may also be provided to offerors, if available and considered appropriate.

The guide includes links and references to procurement regulations and general acquisition guidance to assist the reader in securing more detailed information. The guide is not all-inclusive but is meant to give program offices a starting point for ensuring that contracts incorporate SE as a critical element in any system acquisition. The authors have tried to avoid references to specific service or agency policies, directives, and guidance, as each organization will need to consider the approach.

The Office of the Secretary of Defense (OSD) office of primary responsibility (OPR) for this guide is DUSD(A&T), Systems and Software Engineering / Enterprise Development (SSE/ED). This office will develop and coordinate updates to the guide as required, based on policy changes and customer feedback. To provide feedback to the OPR, please e-mail the office at ATL-ED@osd.mil.

1   ACQUISITION PROCESS

This guide focuses on the major technical elements of the Government acquisition process as defined in DoDD 5000.1, The Defense Acquisition System and DoDI 5000.2, Operation of the Defense Acquisition System. Figure 1-1 is a simplified illustration of DoD's acquisition process with the critical component of contracting. It begins when the warfighter identifies the need (*see* Joint Capabilities Integration and Development System (JCIDS) 3170.01E*)* to the acquisition activity who then translates that need into an actionable requirement and purchase request. The contracting officer (CO) solicits offers from industry and awards a contract. In the final step, the contractor closes the loop by delivering products and services that satisfy the Government need. During acquisition planning, primary responsibility rests with the acquisition activity.
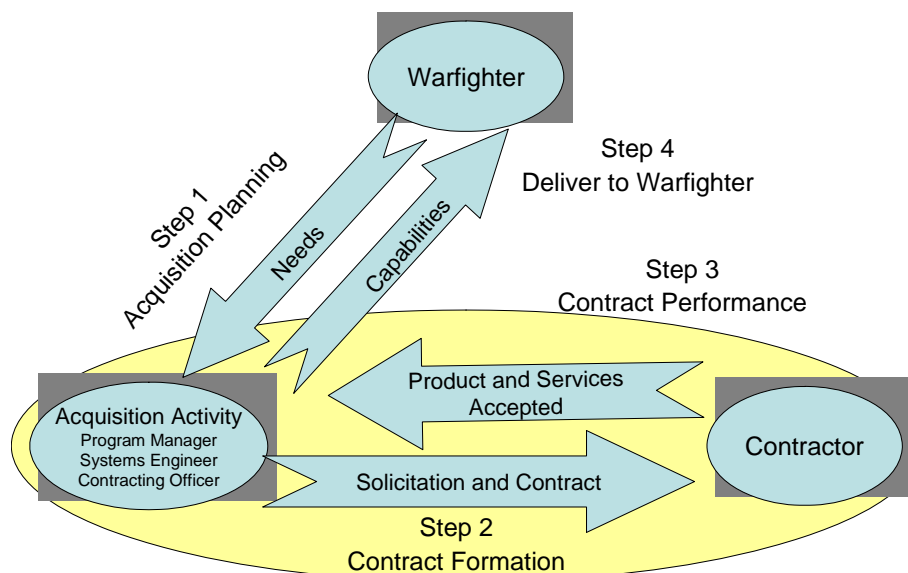
Figure 1-1 Simplified Government Acquisition Process

Acquisition planning is the process of identifying and describing needs/capabilities/ requirements and determining the best method for meeting those requirements (e.g., business, program Acquisition Strategy), including solicitations/contracting. Acquisition planning focuses on the business and technical management approaches designed to achieve the program's objectives within specified resource constraints. The Acquisition Strategy, usually developed in the Technology Development phase of acquisition, is approved by the Milestone Decision Authority and provides the integrated strategy for all aspects of the acquisition program throughout the program life cycle. The Systems Engineering Plan (SEP) (SEP Preparation Guide) documents the program's system engineering strategy and is the blueprint for the conduct, management, and control of the technical aspects of the acquisition program. The Acquisition Plan provides more specific plans for conducting the acquisition and is approved in accordance with agency procedures (FAR Part 7). A Source Selection Plan specifies the source selection organization, evaluation criteria, and procedures, and is approved by the Contracting Officer (CO) or other Source Selection Authority (SSA). All of these documents guide the development of the Request for Proposal (RFP).

It is important that the program team have strong technical and contracting leadership as the program moves through its steps in contract formulation and execution. *It is imperative to have the CO involved in the program acquisition planning process as early as possible.* The [Acquisition Community Connection (ACC) Practice Center](#) Web site is a key source for policy and guidance. Other companion program artifacts include, for example, the Capabilities Development Document (CDD), Technology Readiness Assessment (TRA), Information Support Plan (ISP), Test and Evaluation Master Plan (TEMP), Product Support Strategy (PSS), Support and Maintenance Requirements.

1.1 Contracting Process

The program manager (PM), chief or lead systems engineer (LSE), and a CO must work together to translate the program's Acquisition Strategy and Acquisition Plan and associated technical approach (as defined in the Government SEP) into a cohesive, executable contract(s), as appropriate. Table 1-1 shows some key contracting-related tasks with indicators of roles of the PM and LSE.

Table 1-1 Summary of Contracting Activities and SE and PM Roles

Typical Contract-Related Activities	System Engineer and PM Roles
1. Identify overall procurement requirements and associated budget. Describe the Government's needs and any constraints on the procurement.	Lead SE (LSE) provides program technical requirements. PM provides any programmatic related requirements.
2. Identify technical actions required to successfully complete technical and procurement milestones. The program's SEP is the key source for capturing this technical planning.	LSE defines the technical strategy/approach and required technical efforts. This will be consistent with the program's Acquisition Strategy and Acquisition Plan within the DoDI 5000.2 requirements.
3. Document market research results and identify potential industry sources. See FAR Part 10 for sources of market research and procedures. Small Business must be considered.	PM and LSE identify programmatic and technical information needed and assists in evaluating the results.
4. Prepare a Purchase Request, including product descriptions; Priorities, Allocations, and Allotments; architecture; Government-furnished property or equipment (or Government-off-the-shelf (GOTS); Government-furnished information; information assurance and security considerations; and required delivery schedules.	PM and LSE ensure the specific programmatic and technical needs are defined clearly (e.g., commercial-off-the-shelf (COTS) products).
5. Identify acquisition streamlining approach and requirements, budgeting and funding, contractor vs. Government performance, management information requirements, environmental considerations, offeror expected skill sets, and milestones. These are addressed	The procurement team work together, but the CO has prime responsibility for FAR and the Defense FAR Supplement (DFARS) requirements. The PM is owner of the program Acquisition Strategy. The LSE develops and reviews (and PM

Typical Contract-Related Activities	System Engineer and PM Roles
in the Acquisition Strategy or Acquisition Plan.	approves) the technical strategy.
6. Plan the requirements for the contract Statement of Objectives (SOO) / Statement of Work (SOW) / specification, project technical reviews, acceptance requirements, and schedule.	LSE is responsible for the development of the technical aspects of the SOO/SOW. See FAR Part 11.
7. Plan and conduct Industry Days as appropriate.	PM and LSE supports the CO in planning the meeting agenda to ensure technical needs are discussed.
8. Establish contract cost, schedule, and performance reporting requirements. Determine an incentive strategy and appropriate mechanism (e.g., Award Fee Plan and criteria).	LSE provides technical resource estimates. LSE supports development of the Work Breakdown Structure (WBS) structure based on preliminary system specifications; determines event-driven criteria for key technical reviews; and determines what technical artifacts are baselined. The PM and LSE advise the CO in developing the metrics/criteria for an incentive mechanism.
9. Identify data requirements	LSE identifies all technical Contractor Data Requirements List (CDRL) and technical performance expectations.
10. Establish warranty requirements, if applicable.	LSE works with the CO on determining cost-effective warranty requirements.
11. Prepare a Source Selection Plan (SSP) and RFP (for competitive contracts).	PM and LSE provide input to the SSP per the SOO/SOW, Sections L (Instructions for Offeror) and M (Evaluation Factors) of the RFP.
12. Conduct source selection and award the contract to the successful offeror.	PM and LSE participate on evaluation teams.
13. Implement requirements for contract administration office memorandum of agreement (MOA) and/or letter of delegation. The MOA should define performance requirements/attributes.	PM and LSE provide input regarding the programmatic and technical support efforts to be included in the MOA and/or letter of delegation. [PM may seek DCMA support].
14. Monitor and control (M&C) contract execution for compliance with all requirements.	PM, LSE and program team perform programmatic and technical M&C functions as defined in the contract. They also assist the Earned Value Management (EVM) implementation by defining the criteria for completion of technical activity/delivered products.

Typical Contract-Related Activities	System Engineer and PM Roles
15. Contract Close-out	This is mostly accounting/administration, but CO provides status to PM.

1.2 Important Contract Considerations Affecting Systems Engineering

The following contracting aspects may affect the program's SE efforts and products and should be considered in solicitations:

- **Organizational Conflict of Interest** – The Government acquisition contracting team needs to avoid any organizational conflict of interest (OCI) in SE and technical direction work to be performed by a potential contractor. A potential OCI exists when, because of a contractor's other activities, the contractor may enjoy an unfair competitive advantage, or when award of the subject contract could put the contractor in the position of performing conflicting roles that might bias the contractor's judgment (see FAR 9.5). The CO is responsible for using the general rules, procedures, and examples in the FAR to identify and evaluate potential OCIs as early in the acquisition process as possible and to avoid, neutralize, or mitigate significant potential conflicts before contract award. From the program's point of view, they must be aware that any current or previous involvement of contractors or consultants in aspects of this, or a related, program may preclude the opportunity of responding to the RFP being prepared. High standards of ethics and professionalism are expected of every participant in the source selection process. Any questions or concerns about procurement integrity or standards of conduct should be brought to the agency ethics official or the CO.

- **Commercial Item Acquisition** – Market research will determine if commercial items (e.g., COTS) or non-developmental items are available and may meet certain technical requirements of the program. The SE (i.e., includes LSE and other technical staff – logistics, T&E, IA, etc.) team plays a key role in supporting the market research efforts, analyzing technical attributes and associated costs related to benefits and risks of various such options. Generally, however, the Government's requirements should be described in terms of performance requirements. This is usually part of the Acquisition Strategy. It should be left to the offerors (in their proposals) and contractor, in design documents delivered to the Government for approval, to describe the planned use of commercial items.

- **Incentive Contracts** – There are several types of incentives, such as award fees, to motivate contractors to excel in performance, and reduce risks to the Government. The CO has ultimate responsibility for determining contract type and incentives (see Incentive Strategies for Defense Acquisitions Guide). If an award fee type contract will be used, the PM and LSE will assist the CO to develop an Award Fee Plan. The award fee generally should be associated with successful completion of discrete events, such as technical reviews, that demonstrate progress toward successfully completing contract requirements. Other award fee criteria may include key system performance parameters and the contractor's cost and/or schedule performance. Consideration should be given to using existing performance metrics, such as the

contractor's Earned Value Management System (EVMS) and other SE and PM tools (see Section 2.4 for more discussion).

2   SYSTEMS ENGINEERING IN ACQUISITION PLANNING

Systems engineering (SE) is an overarching process that the program team applies to transition from a stated capability need to an affordable, operationally effective and suitable system (DAG Chapter 4, Systems Engineering). A brief overview of SE is provided here to set the stage for showing how it becomes a critical aspect of acquisition contracts. SE encompasses the application of SE processes across the acquisition life cycle and is intended to be an integrating mechanism for balanced solutions addressing capability needs, design considerations and constraints, as well as limitations imposed by technology, budget, and schedule. SE is an interdisciplinary approach or a structured, disciplined, and documented technical effort to simultaneously design and develop system products and processes to satisfy the needs of the customer (DAG § 4.1).

During the program acquisition life cycle it is critical that an "early and consistent" application of SE begin at the onset of a program (Concept Refinement and Technology Development (CR/TD) phases). It is recommended that a program SE Integrated Product Team (SEIPT) be formed early in the acquisition planning activity to undertake the technical planning activities. A Lead or Chief Systems Engineer should chair the SEIPT, and other SE/technical Subject Matter Experts (SMEs) are active members, e.g., T&E, M&S, Logistics/ Sustainment, Software (SW), IA, security, and safety engineering.

For those programs entering directly into SDD phase, the technical effort begins long before the associated Milestone B and development of the RFP. The program Acquisition Strategy, including the technical approach, should be documented in an integrated set of Government plans that includes the Acquisition Strategy (DAG Chapter 2, Defense Acquisition Program Goals and Strategy), SEP (DAG § 4.5.1 and SEP Preparation Guide), Test and Evaluation Strategy (TES)/TEMP (DAG Chapter 9, Integrated Test and Evaluation), ISP (DAG § 7.3.6), Risk Management Plan (Risk Management Guide for DoD Acquisition), Preliminary System Performance Specification (or equivalent), Program Budget, Government Roadmap and/or Top Level Program Schedule (Integrated Master Plan and Integrated Master Schedule Preparation (IMP/IMS) and Use Guide). These activities will support the development of the Acquisition Plan and SSP. Building on this solid foundation, the RFP should reflect the Government's policy directives, program Acquisition Strategy, user requirements to meet capability needs, and, the program's processes, lessons learned, and sound practices of both Government and industry (see Figure 2-1).

Regardless of the scope and type of program or at what point it enters the program acquisition life cycle, the technical approach to the program needs to be integrated with the Acquisition Strategy to obtain the best program solution.
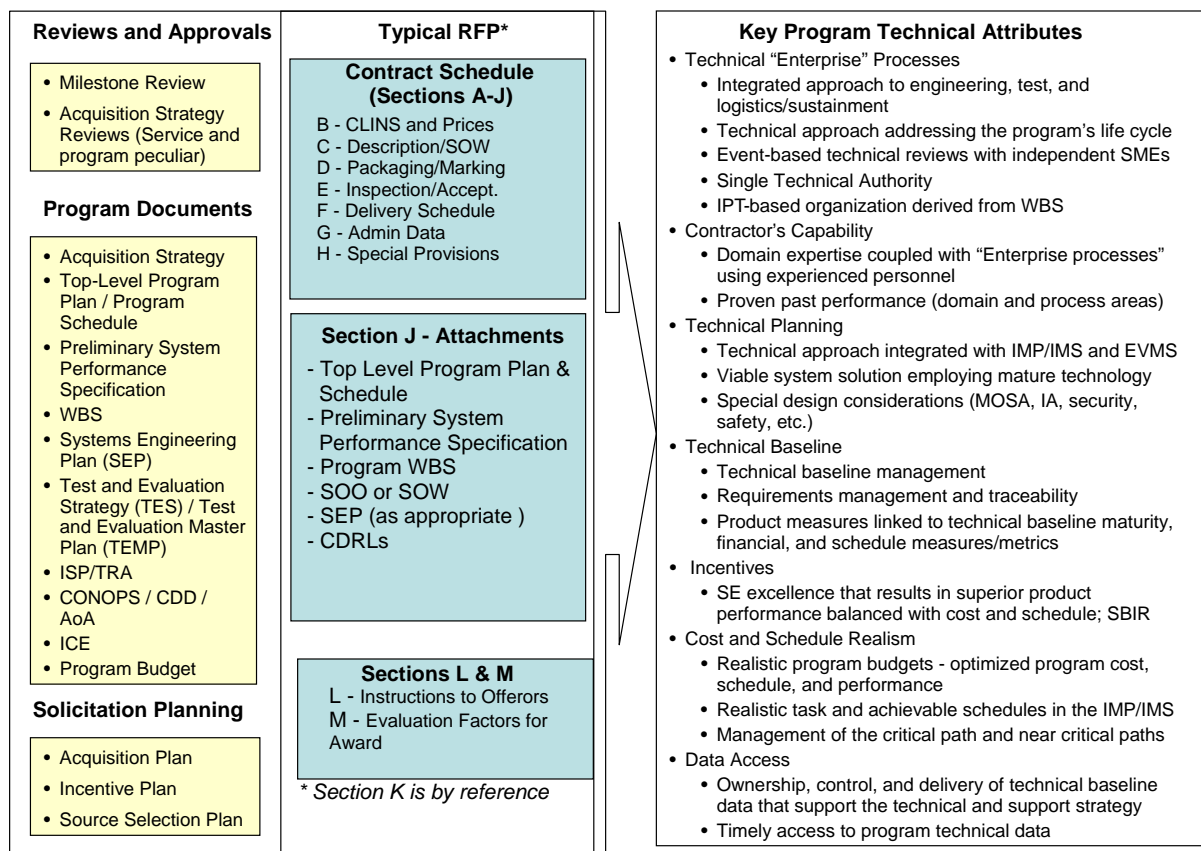
Reviews and Approvals

- Milestone Review
- Acquisition Strategy Reviews (Service and program peculiar)

Program Documents

- Acquisition Strategy
- Top-Level Program Plan / Program Schedule
- Preliminary System Performance Specification
- WBS
- Systems Engineering Plan (SEP)
- Test and Evaluation Strategy (TES) / Test and Evaluation Master Plan (TEMP)
- ISP/TRA
- CONOPS / CDD / AoA
- ICE
- Program Budget

Solicitation Planning

- Acquisition Plan
- Incentive Plan
- Source Selection Plan

Typical RFP*

Contract Schedule (Sections A-J)
B - CLINS and Prices
C - Description/SOW
D - Packaging/Marking
E - Inspection/Accept.
F - Delivery Schedule
G - Admin Data
H - Special Provisions

Section J - Attachments
- Top Level Program Plan & Schedule
- Preliminary System Performance Specification
- Program WBS
- SOO or SOW
- SEP (as appropriate)
- CDRLs

Sections L & M
L - Instructions to Offerors
M - Evaluation Factors for Award

* Section K is by reference

Key Program Technical Attributes
- Technical "Enterprise" Processes
  - Integrated approach to engineering, test, and logistics/sustainment
  - Technical approach addressing the program's life cycle
  - Event-based technical reviews with independent SMEs
  - Single Technical Authority
  - IPT-based organization derived from WBS
- Contractor's Capability
  - Domain expertise coupled with "Enterprise processes" using experienced personnel
  - Proven past performance (domain and process areas)
- Technical Planning
  - Technical approach integrated with IMP/IMS and EVMS
  - Viable system solution employing mature technology
  - Special design considerations (MOSA, IA, security, safety, etc.)
- Technical Baseline
  - Technical baseline management
  - Requirements management and traceability
  - Product measures linked to technical baseline maturity, financial, and schedule measures/metrics
- Incentives
  - SE excellence that results in superior product performance balanced with cost and schedule; SBIR
- Cost and Schedule Realism
  - Realistic program budgets - optimized program cost, schedule, and performance
  - Realistic task and achievable schedules in the IMP/IMS
  - Management of the critical path and near critical paths
- Data Access
  - Ownership, control, and delivery of technical baseline data that support the technical and support strategy
  - Timely access to program technical data

Figure 2-1 Relating Acquisition Program Elements to RFP and Technical Attributes

2.1 Technical Approach and the Systems Engineering Plan (SEP)

The technical approach for the program begins at the very onset of a program and is documented in the SEP and related plans (e.g., Risk Management Plan). Before source selection, the SEP reflects the Government's technical approach to the program as it moves through the CR/TD, SDD, Production and Deployment (P&D), Operations and Support (O&S) program acquisition life cycle phases. As defined in the SEP Preparation Guide, the SEP is the blueprint for the conduct, management, and control of the technical aspects of an acquisition program from conception to disposal, i.e., how the SE process is applied and tailored to meet each acquisition phase objective. The process of planning, developing, and coordinating SE and technical management forces thoughtful consideration, debate, and decisions to produce a sound SE strategy for a program commensurate with the program's technical issues, life cycle phase, and overall objectives

The SEP is the one document that defines the methods by which all system requirements having technical content, technical staffing and technical management are to be implemented on a program, addressing the government and all contractor technical efforts. [Note: Until a contractor is selected, this part will represent high level expectations, within the defined Acquisition Strategy and Plan, of what the contractor will perform to be consistent and integrated

with the Government's SEP]. A few key contract relevant items are extracted from the SEP Preparation Guide and reiterated here:

- The SEP is about overall organization of the technical effort, including delineation of authorities, responsibilities, and integration across the government and contractor boundaries.

- The SEP shows how the SE structure is organized to provide technical management guidance across the government, prime contractor, subcontractors, and suppliers.

- The SEP provides an overview of government and contractor data rights for the system to include what key technical information and data will be developed during the phase being planned.

- The SEP summarizes how the program's selected Acquisition Strategy is based on the technical understanding of the problem at hand and the identified program risks to include the list of program risks.

- The SEP describes how the contract (and subcontract and suppliers', if applicable) technical efforts are to be managed from the Government perspective.

A key requirement of offerors' responses to the RFP is the submission of a fully integrated technical management approach that is expanded from the Government SEP to a fully integrated SEP [Note: traditionally this was documented in a SE Management Plan (SEMP)] which includes the offeror's technical approach, processes, procedures, tools, etc.). Also included in the response will be a Contractor SOW (CSOW), an updated, expanded, and integrated Contractor WBS (CWBS), which is correlated with the offeror's EVMS (EVMS Implementation Guide), as appropriate, and the IMP/IMS.

Following the source selection and contract award, the SEPs evolve into a Program SEP (see Section 4 of this guide), documenting the Government and industry shared view of the technical approach and planning for the program. For contractual and management efficiency, the revised Government SEP and contractor's integrated SEP may remain as two separate documents with appropriate links in an Integrated Development Environment (IDE) to ensure communication and configuration control across the Government and contractors activities and products as work progresses and changes are authorized. As a program progresses through its life cycle, the level of fidelity and areas of emphasis in the SEP will change. It is important that the program team have a single vision of the technical planning (therefore the individual SEPs will be in alignment) and execution when making a commitment for the design, development, test, and transition of a system/product(s) to satisfy user's operational, logistics, and sustainment needs.

2.2 System Requirements

Sound system requirements (including performance) are the backbone of a good technical strategy and resultant plan (as documented in the SEP and related plans). The performance requirements, as a minimum, must be commensurate with satisfying the threshold for the critical operational (including sustainment and support) requirements (e.g., Key Performance Parameters (KPPs)) and balanced with program cost, schedule, and risk constraints. If these elements are not balanced at the start of the SDD phase, the program has a high probability of incurring cost increases, suffering schedule delays, and/or deficient performance of the end product. An

important element of the program's technical plan should be focused on maturing the technical baseline via event-based technical reviews and completeness of T&E (SEP Preparation Guide and DAG Chapter 9, Test and Evaluation) while managing the systematic decomposition and allocation of the requirements down the specification hierarchy (DAG § 4.3.3). Figure 2-2 illustrates the relationships among requirements, technical reviews and technical baseline.
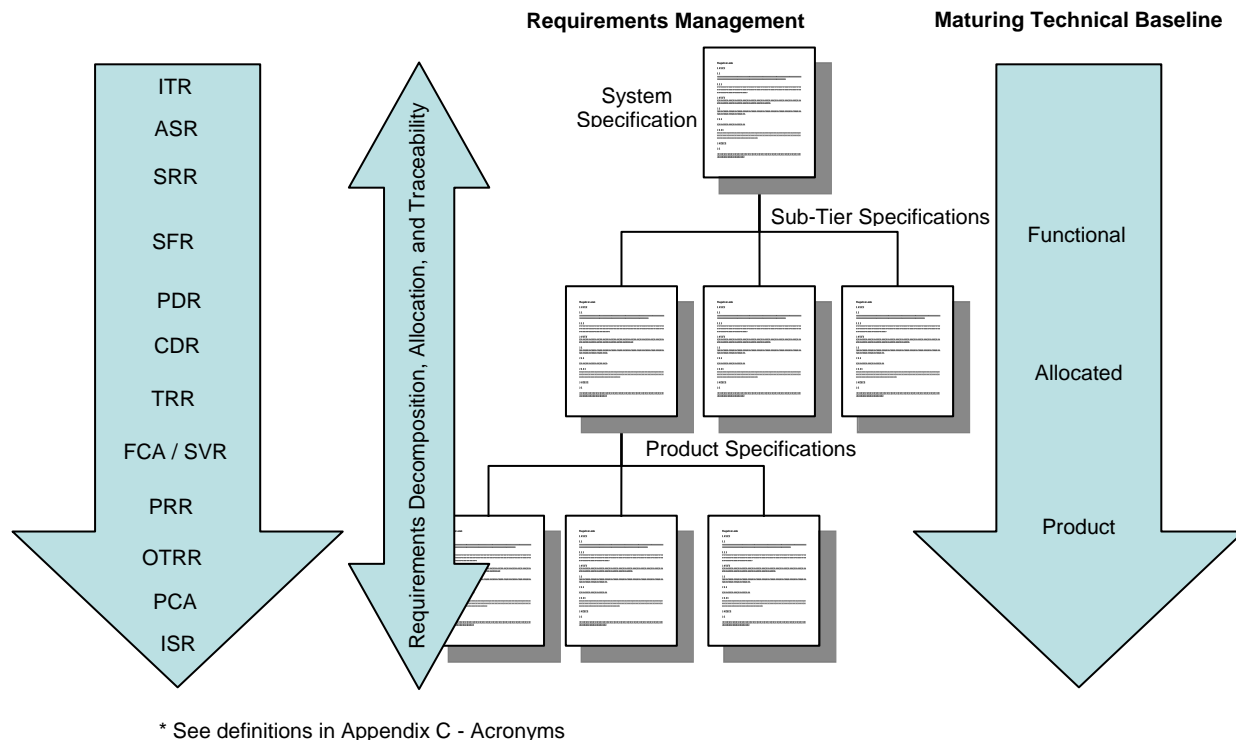
Figure 2-2 Key Technical Relationships

2.3   Systems Engineering in the Statement of Objectives (SOO)

When the Government develops a SOO, as opposed to a SOW, in the RFP (and in attachment J), the SOO is a clear and concise document that delineates the program objectives and the overall approach, particularly critical (or high risk) requirements that become part of the trade space. The TRA will support this identification. Table 2-1 contains suggested technical/SE items to consider including in a SOO.

The SOO does not become part of the subsequent contract. [Note: A SOW, or a PWS, is always included].

Table 2-1 Sample SE Items for a SOO during the SDD Phase

The program's technical approach will capitalize on Government and industry standards, policies, and directives while leveraging the contractor's domain experience and "enterprise processes." The technical objectives for the program are to:

1. Design, develop, test, and deliver a system which meets the performance requirements of the user when operated within the XXX System-of-Systems (SoS) (or within YYY Family-of-Systems (FoS)).

2. Use contractor "enterprise processes" to execute the program. Flow down policies and processes to the lowest level of the contractor (subcontractors, teammates, or vendors) team as appropriate. Employ continuous process improvement activities integrating both Government and contractor practices and processes. Ensure Government technical processes, as defined in their SEP, are integrated and consistent with the contractor technical processes.

3. Document the program's technical approach in a Program SEP (including both Government SEP and the contractor integrated and expanded SEP) that is updated throughout the life of the program.

4. Implement event-based technical reviews that are included in the IMP and IMS with specific entry and exit criteria. Technical reviews include the participation of independent (of the program) subject matter experts.

5. Establish interface management processes which define the inter-system (SoS, FoS) interfaces and intra-system [subsystems, Commercial-off-the-Shelf (COTS), Government-off-the Shelf (GOTS), etc.] interfaces to support system development.

6. Use contractor configuration management (CM) processes to control the configuration of technical baseline data and product configurations. Provide real-time access to technical product data for program participants. Ensure compatibility with the Government CM processes.

7. Enhance opportunities for incorporation of advanced technology for improved performance and sustainment using Modular Open Systems Approach (MOSA) principles. Encourage use of commercial products and industry-wide standards recognized for high quality.

8. Use modeling, simulation, prototypes, or other means to allow early Government assessment of product maturity and functional capabilities in support of technical reviews along with optimizing system-level testing.

9. Include Government participation on IPTs to gain insight into program progress and streamline the coordination and decision processes. Ensure compatibility and integration with the Government defined IPTs (see Government SEP).

10. Implement a comprehensive risk management process that is focused on program risk areas and the program's critical path(s) to systematically identify and mitigate cost, schedule, and technical risks. Ensure Contractor risk management processes are compatible with the Government risk management process.

The guidance for the SOO is generally applicable to a SOW also.

2.4   Technical Incentive Strategies

The determination and development of an incentive strategy begins early in the program. The incentive criteria should reflect areas of performance for which the Government wants to encourage performance excellence as a risk reduction activity. A contractual incentive, such as an award fee (refer back to section 1.2), should focus on the most critical SE issues and/or practices (DAG § 4.2.3 and § 4.2.4). Two award fee examples are presented for illustration:

Risk Management Incentive - A contractor's risk management process is one example of an award fee element that could recognize and reward a contractor that strategically focuses on efficient and effective management practices. Award fee criteria may include the extent to which the risk management process employed on the acquisition program is integrated across the government and contractor team. Sample indicators of an integrated process include:

- A risk management process in which shared metrics and risk management systemic analysis are routinely accomplished

- Use of a single risk management database with established links between Risk Management/Technical Reviews/TPMs/EVM/WBS/IMS

- Documented traceability of mitigation efforts

- A risk management process coupled to change control activities

- An enterprise-level view of risk management to prevent the acquisition program from being adversely affected by other enterprise acquisition programs or enterprise-wide challenges.

The risk management information in the DAG Chapter 4 and in the Risk Management Guide for DoD Acquisition are sources of other indicators of an integrated risk management process.

Technical Reviews Incentive - A contractor's technical review process is considered extremely important to program success. Award fee criteria should include timely, or early, completion of design reviews, and award fee should be reduced or eliminated if design reviews are critically late. .

The DAG Chapter 4 elaborates further on key technical reviews.

An important element of any award fee plan is to ensure that key criteria are measurable to minimize potential for subjective evaluations and therefore have a clear understanding between Government and contractor regarding performance incentives.

2.5   Government and Industry Interaction

There should be an environment of open communication prior to the formal source selection process (1) to ensure industry understands the Government requirements, and that the Government understands industry capabilities and limitations; and (2) to enhance industry involvement in the Government's development of a program Acquisition Strategy. During the pre-solicitation phase, the Government develops the solicitation and may ask industry to provide important insights into the technical challenges, program technical approach, and key business motivations. [Note: The CO is the Government's principal point of contact with industry]. For

example, potential industry bidders could be asked for their assessment of proposed system performance that is achievable based on the maturity level of new technology as well as existing technology. The Government takes the leadership role in this stage. Lessons learned from past programs suggest that contract formation can be very productive when a highly collaborative environment is created involving user, acquisition, sustainment, and industry personnel to understand and capture the technical challenge and technical and programmatic approaches needed to successfully execute a program. As can be seen from the Integrated Defense AT&L Life Cycle Management Framework, Market Research begins early in the life cycle (i.e., CR/TD phases) as part of initial risk analyses activities. The CO may develop and provide to industry a draft RFP to enhance an understanding of the customer needs and the industry's capabilities to cost-effectively meet these needs.

2.5.1   Market Research

FAR Parts 7, 10, and 11 require the Government to conduct acquisition planning, to include market research (DAG § 2.3.16.1.4.1 and 10 USC 2377), as a way to establish the availability of products and vendors which can meet potential needs. Market research supports the acquisition planning and decision process by supplying technical and business information about industry's technology, products, and capabilities. Market research can be used to obtain additional information on a company's technical and management processes capabilities along with their domain expertise (DAG § 4.2.5). These factors can be assessed during source selection, rather than by market research. Market research should also be used to identify any required sources of supplies or services (FAR Part 8) and restrictions or other issues regarding foreign sources of supplies (FAR Part 25).

2.5.2   Industry Days

Before release of a formal RFP, the Government may hold Industry Days to inform industry of the technical requirements and acquisition planning plus to solicit industry inputs for the pending program. Both large and small businesses should be encouraged to attend. The CO will establish the agenda for Industry Day and the ground rules for interchange with industry representatives. Table 2-2 provides some example technical-related topics for Industry Days.

Table 2-2 Example Technical Topics for Industry Days

1. The Government should describe its commitment to the program and how it fits into the Service's or Agency's portfolio of programs—its relationship with other programs.

2. The Government should emphasize and describe its overall technical approach to the program and the interdependencies with cost and schedule. The Government SEP should be made available to industry as a starting point for their technical planning.

3. The Government and industry should discuss trades and analyses that have been conducted during the requirements-generation process. While solution alternatives may be discussed, the emphasis should remain on the resulting performance (including supportability) requirements, not on the specifics of the alternatives. [Note: Some potential offerors may choose not to discuss specifics of their potential alternative in the presence of potential competitors.] The results of Government trades and analyses should be made available to industry as appropriate JCIDS documents: AoA, ICD, draft CDD, Concept of Operations (CONOPS), etc. These discussions are intended to understand the specific operational and sustainment requirements critical to the program.

4. While it is necessary to investigate potential design solutions that are responsive to the requirements, the Government team should avoid becoming "fixated" with the solutions. The user sometimes becomes enamored with what he "likes;" the program team focuses on the one that "works;" and industry has one it wants to "sell." The focus is on establishing the cost-effective system performance requirements that deliver the necessary warfighter capability—not picking the design solution. Industry Days should inform the solicitation development, not define a solution.

5. The Government presentations and discussions should address the program Acquisition Strategy, the SE approach as being developed in the Government SEP, and how they were established. The discussions should also emphasize the importance of Total Life Cycle System Management (TLCSM) (DAG Chapter 5, Life Cycle Logistics).

2.5.3 Draft Request for Proposal (RFP)

The CO may release a draft RFP prior to a formal RFP to secure industry inputs, comments, and suggestions. The Government team should make the draft as complete as possible. The Government should allow sufficient time (at the CO's discretion) for industry to respond and should seriously consider all industry suggestions and comments and modify the solicitation, as appropriate to reflect needed changes. After the formal release of an RFP, the exchange of comments, questions, and answers, etc., regarding the RFP become strictly controlled and are conducted only through the CO. It is much better to make changes before the release of the RFP than to amend it afterward, which may require an extension of proposal preparation time.

Although Market Research, Industry Days and draft RFPs are important, they are just three of many tools available for exchanging information with industry. Other exchanges of information include Industry or small business conferences; public meetings; one-on-one meetings with potential offerors (with the approval of the CO); Pre-solicitation notices; Request for Information (RFI); Pre-solicitation or pre-proposal conferences; and Site visits. The readers are referred to the FAR and the DFARS for more details.

2.6   Technical Planning in the Source Selection Plan (SSP)

The SSP describes the organization of the source selection team along with the factors and subfactors included in Section M, Evaluation Factors (DFARS Part 215). The program's technical approach, including key performance parameters and risk, should be reflected in the evaluation factors. [Note: "Factors" is the FAR/DFARS term; most SE /technical personnel use the term "criteria" interchangeably]. Figure 2-3 illustrates a typical Source Selection Organization. The Source Selection Evaluation Board (SSEB) oversees the evaluation team's activities and briefs the findings to the Source Selection Authority, which makes the decision.

The Government's technical authority or the program's LSE (DAG § 4.1.6, Systems Engineering Leadership) should lead the technical evaluation team. Technical personnel (to include Government SMEs, e.g., system safety, security, IA) should participate on each panel (or committee) of the source selection organization (see Figure 2-3), as necessary to assess each factor and subfactor that forms the basis of the source selection. The evaluation factors and the subsequent evaluation rely upon personnel who are qualified in the functional area and have the past experience and qualifications necessary to make an assessment on proposal credibility.

The technical team supporting the evaluation should include representatives from the acquisition organization, including the Defense Contract Management Agency (DCMA), logistics/ sustainment, other appropriate SMEs, and user organizations. To ensure continuity and promote a smooth transition into contract execution, personnel who will be involved in the program should also be involved in developing the SSP and evaluation factors. It is strongly recommended that a qualified (e.g., to include familiarity with the Government SEP) technical/SE program representative also be involved in the Management and Past Performance evaluation teams since these teams will evaluate technical organization structure, skills, abilities, experience, and technical/SE management best practices to be employed by the offeror.

Source selection procedures should minimize the complexity of the solicitation by only requiring the information necessary to make a decision and limiting evaluation factors/ subfactors to those that are key discriminators - thus enabling the source selection decision while fostering an impartial and comprehensive evaluation of offerors' proposals and selection of the proposal representing the best value to the Government.

Systems Engineering Should be Integrated in All Source Selection Factors

EVALUATION FACTORS
- Cost*
- Quality of Product*
- Past Performance*
- Technical
    - e.g., ILS, excellence
- Management Capability
    - e.g., Personnel qualifications
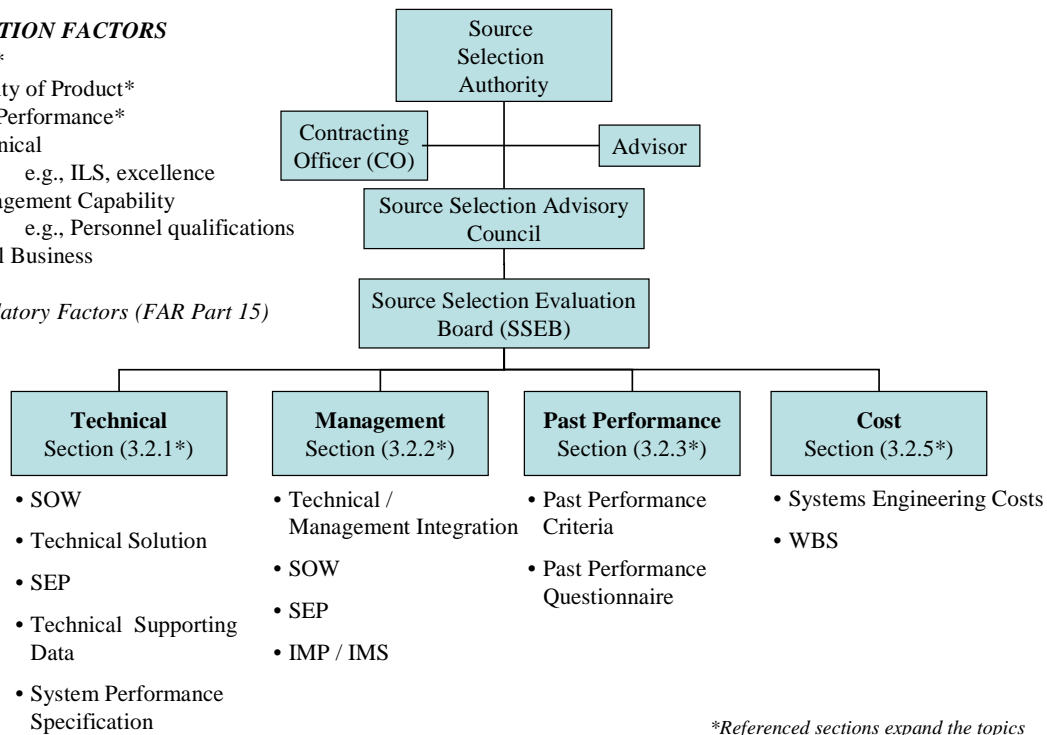- Small Business

Mandatory Factors (FAR Part 15)

```
                         Source
                        Selection
                        Authority
     Contracting                          Advisor
   Officer (CO)
                  Source Selection Advisory
                          Council
                  Source Selection Evaluation
                       Board (SSEB)
```

Technical Section (3.2.1*)	**Management** Section (3.2.2*)	**Past Performance** Section (3.2.3*)	**Cost** Section (3.2.5*)
• SOW	• Technical / Management Integration	• Past Performance Criteria	• Systems Engineering Costs
• Technical Solution	• SOW	• Past Performance Questionnaire	• WBS
• SEP	• SEP		
• Technical Supporting Data	• IMP / IMS		
• System Performance Specification			

Referenced sections expand the topics

Figure 2-3 Typical Source Selection Organization and Factors

An offeror's proposal must respond to all of the requirements of the RFP. [Note: Proposal may still not be successful, i.e., win the award]. However, the quality of the proposal has a direct correlation to the clarity and completeness of the Government's requirements in the RFP. [Note: Any ambiguities in the solicitation will be held against the Government in the event of a dispute]. The Government should assign its best personnel to the pre-solicitation team and the source selection team. The source selection team will be exercising their judgment and critical thinking when making a selection, and this is best served using experienced personnel that have domain experience, technical expertise, specifically SE and other specialty areas noted above, and program knowledge. It may be necessary to train some of the team in the source selection process in more detail than provided herein.

3 REQUEST FOR PROPOSAL AND SOURCE SELECTION

The RFP includes the terms and conditions that will be in the final contract. The FAR subpart 15.204.1 specifies the format and content of RFP solicitations and contracts. The RFP typically includes two categories of documentation:

- Program Documents: Government Roadmap Schedule, Incentive Plan, Government SEP, ISP, TRA, TES/TEMP, and preliminary SPS are examples of program documents which may be attached to the RFP or available in a "Bidders Library." Other documentation, such as ICD, CDD, other JCIDS documents, COTS/GOTS data, FoS/SoS interface data, and reports from previous phases of the program are also typically included in the Offeror's Library. These documents provide background on the program and describe the Government's management and technical approach to the system acquisition. [Note: Several of these documents are required for Milestone B and are described in the DAG Chapter 4].

- RFP Documents: A typical RFP includes a model contract with any special clauses (e.g., CLINs, SOO or SOW, CDRL), Preliminary WBS, Evaluation Factors (Section M), and Instructions to Offerors (Section L). The RFP (with the program documents referenced in the RFP) defines the program and sets the basis for the contract.

The following subsections address guidance that could be considered to include in Sections C and J and Sections L and M of an RFP.

3.1 Sections C and J of the RFP

Section C (includes Description/Specification/SOO or SOW) of the RFP contains the description of the products to be delivered or the work to be performed under the contract. This section typically includes the Government's SOO (or SOW) and preliminary system performance specification. Section J, List of Attachments, lists the attachments such as initial IMP, Top Level Program Schedule, Government SEP, CDRLs, and Contract Security Classification Specification (DD Form 254).

3.2 Sections M and L of the RFP

Please note that we have selected to discuss the specifics of Section M before L since that is the order in which the effort is needed. Evaluation Factors are defined before one can complete the Instructions to Offerors. In order to accommodate variations among the Services' source selection processes, RFP format nuances, and differences among programs, the discussion of Sections M and L is segmented into four general topics: i.e., Technical, Management, Past Performance, and Cost (see Figure 2-3). The technical developers of these sections must work closely with the contracting officer to ensure compliance with appropriate regulations. The following subsections include brief discussions of each topic and example language (in shaded Tables) that can be tailored for program RFPs (or other type of solicitation). [Note: It is important to remember that the focus of this guide is on the technical elements of the RFP, and the sample items must be integrated with the rest of the RFP to fit the overall program strategy and program implementation approach].

Section M of the RFP states the evaluation factors that are used for selecting the contractor. Section M should be carefully structured to address only those elements determined to be discriminators in the source selection to select the best proposal with acceptable program risk. The most effective Section M evaluation factors are measurable, relevant to the program,

traceable, with expected differentiation among the offers, and under the offeror's control. Section M should not contain any evaluation factors or subfactors for which there is not a corresponding request for proposal information in Section L. *Appendix A* has additional tips for program teams when developing Section M.

Section L of the RFP instructs the offerors on how to structure their proposal and what should be included in each proposal section. It needs to clearly identify the structure and composition of each volume and section of the proposal and should track to the evaluation factors in Section M.

In preparing Sections L and M, be aware of the proposal preparation time and page limitations. Ask only for information that should be readily available to offerors and that is necessary to accomplish the source selection evaluation.

Table 3-1 contains a list of SE related questions to help the team develop the technical aspects of Section M and Section L.

Table 3-1 Sample Questions for Developing Specific SE -Related Criteria and Instructions for Sections M and L

1. How will the evaluation team establish an understanding of the offerors' technical approach?
2. How can the evaluation team develop confidence that the offerors' proposed technical design solutions will meet all technical requirements, including operational performance and logistics/sustainment requirements?
3. Is the technical approach implemented within performance, cost, and schedule requirements?
4. How will the evaluation team evaluate the SoS or FoS interfaces and integration issues on the program?
5. How will the evaluation team establish whether the specific plans for implementing and managing the technical (i.e., SE) and technical management processes are based on company enterprise processes? Is there objective evidence of the capability or maturity of these processes based on industry best practices? How will they be evaluated for consistency and compatibility with the Government's technical and management processes (as defined in the SEP)?
6. How will the evaluation team determine that the domain experience, past performance, and process maturity of the specific project team, company subgroup, teammates, and subcontractors proposed to execute the work directly related to the program being bid?
7. How will the evaluation team understand whether the proposed technical solution is adequately supported by studies, analyses, modeling and simulations, and demonstrations?
8. How will the evaluation team evaluate the fidelity and appropriateness of modeling and simulation proposed for the project, and how will it be validated?
9. How will the evaluation team determine whether the offeror's proposed IA approach solution meets DoD requirements? Also for any security or safety engineering requirements.
10. How will the evaluation team assess the maturity and application of the offeror's proposed processes in the proposal risk assessment?

> 11. How will the evaluation team determine that the risk management approach proposed is appropriate for the program being bid (e.g., consistent and compatible with the Government's risk management process).
> 12. How will the evaluation team determine that technical cost and resources proposed for the program are reasonable and realistic for the planned program approach?
> 13. How will the evaluation team establish that the offeror's proposed schedule is realistic and that the critical path(s) analysis is realistic?

Oral presentations by offerors may substitute for or augment written information (see FAR § 15.102). Use of oral presentations as a substitute for portions of a proposal can be effective in streamlining the source selection process. Oral presentations may occur at any time in the acquisition process, as determined by the CO or Source Selection Authority, and are subject to the same restrictions as written information, regarding timing (FAR § 15.208) and content (FAR § 15.306). [Note: Discussions may or may not be permitted during oral presentations]. Information pertaining to areas such as an offeror's capability, past performance, work plans or approaches, staffing resources, transition plans, or sample tasks (or other types of tests) may be suitable for oral presentations.

The evaluation team may include a matrix in the RFP that correlates Section L to Section M so that it is clear what portions of the proposal are expected to contain information used to evaluate each Section M evaluation factors. It may also be appropriate to develop a matrix that includes other RFP documents.

The next sections present technical example items for inclusion in sections M&L of the RFP as they relate to the three key evaluation factor areas (i.e., Technical, Management, and Past Performance). Additionally, we address overall Proposal Evaluation, Cost Factor Evaluation, and Risk Assessment Evaluation.

3.2.1   Technical Factor Evaluation

The core of the technical evaluation centers on the offeror's system performance specification, the description of the technical solution, and any supporting data related to trade studies, analyses, modeling, and simulations that have been requested in Section L. [Note: Recall we present section M (Evaluation Factors) examples before section L (Instructions (e.g., Proposal Content) for Offerors) examples due to precedence in the determination.]

3.2.1.1   Technical Solution and Technical Supporting Data

An offeror's technical solution, in response to the SOW and other identified requirements, will, in part, be based on analyses that are based on technical supporting data and resulting performance specifications. These topics are discussed below.

There are two general types of technical data requested in most RFPs. First, there is the description of the proposed technical solution and resulting performance as it relates to the Government's requirements. [Note: A discussion of the specific technical data that describes the offeror's product offering is not addressed here since it is unique to each program]. Table 3-2 and Table 3-3 contain sample items for inclusion in Sections M and L, respectively, for the supporting technical data. The second type of data includes trade studies and analyses, including modeling and simulation results, that provide substantiating data showing not only the

performance but also the extent and scope of alternative solutions considered before arriving at the proposed technical solution and specification. Often "why" something was discarded is as important as "what" was selected.

Table 3-2 Sample Evaluation Criteria for Technical Solution and Technical Supporting Data

The technical solution and technical supporting data factor (subfactor) is satisfied when Offeror's proposal demonstrates:
1. The Offeror has conducted a series of trade studies, analyses, and modeling and simulations that systematically evaluated the range of alternatives leading to a preferred technical solution. The results support the technical and program requirements and validate the proposed configuration and the corresponding performance in the system specification.
2. The trade study process was uniformly and consistently applied and followed the Offeror's documented corporate enterprise processes.
3. Trade study and decision criteria addressed the critical cost, schedule, technology, risk, and performance requirements (including operational and sustainment) and other considerations for the program with a high degree of confidence

Table 3-3 Sample Proposal Content Requirement for Technical Solution and Technical Supporting Data

The Offeror shall provide a summary of the trade studies and analyses accomplished to arrive at the proposed technical solution. The Offeror shall:
1. Describe the trade study, analysis, and modeling and simulation processes implemented to arrive at the proposed technical solution; explain the level of fidelity of the models and simulations to support accurate and reliable results.
2. Provide a summary of the trade studies, demonstrations, and analyses results that support the proposed technical solution and program technical approach.
3. Provide a description of the trade study evaluation criteria, how they relate to the key performance requirements and constraints for the program, and the planned technical approach addressed in the contractor's integrated SEP. The data shall address the range of alternatives considered and the important results that support the technical decisions and the program technical approach. If the contractor plans to mature a technology, back up plans should be assessed as well as risk mitigation planning.

3.2.1.2   System Performance Specification (SPS)

A preliminary SPS is included in Section C of the RFP. This specification defines the Government's performance requirements for the system. The offeror responds with a SPS in their proposal that is to be in the contract. Table 3-4 and Table 3-5 contain sample items for inclusion in Sections M and L, respectively, for the system performance specification. Remember we are using an SOO or SOW for an RFP as the nominal example solicitation information. These can be tailored and modified as appropriate for other solicitation packages. The offeror's specification includes the Government requirements plus any derived requirements necessary to describe the system level performance. It may include allocation of requirements and should include corresponding verification requirements. The SPS should not include SOW

language, tasks, guidance, or data requirements but should reference necessary industry and approved military specifications and standards.

Table 3-4 Sample Evaluation Criteria for System Performance Specification

The Offeror's system performance specification will be evaluated in conjunction with the proposed technical solution based on the following criteria:
1. Specification includes the key requirements and functionality identified in the RFP's preliminary system performance specification.
2. Performance (including logistics/sustainment/support) requirements are quantifiable and testable and/or verifiable.
3. Objective values (goals) are clearly identified and distinguished from firm requirements.
4. The operational and support environment is described and defined.
5. Environmental design requirements are specified.
6. Functional, electronic, physical, hardware, and software interfaces for the system are included.
7. System FoS and SoS interoperability and interface requirements are established (both physical and functional). Considers Open Systems and Modularity standards.
8. Appropriate use of Government and industry specifications, standards, and guides.
9. Verification approaches for all system performance and sustainability requirements included in the specification are complete and appropriate.
10. The specification does not include unnecessary requirements and language (e.g., SOW tasks, data requirements, and product or technical solution descriptions).

Table 3-5 Sample Proposal Content for System Performance Specification

The Offeror shall propose a System Performance Specification that meets the Government minimum requirements. The specification should be performance based and address the allocation of Government performance requirements plus any derived requirements necessary to describe the performance of the integrated system solution. Elements to be addressed in the System Performance Specification include:
1. Accurate and complete understanding of the performance and support requirements in the Government's preliminary system performance specification included in the RFP.
2. Derived requirements necessary to document the system performance and sustainability that will govern the design, development, and test program.
3. Identified and documented system-level operational, physical, and functional interfaces that define the program external interfaces and constraints. SoS and FoS interoperability and interface requirements are included for both physical and functional interfaces. Include considerations for Open Systems design.
4. A verification section to the specification that delineates the approach to verifying all performance and support characteristics.
5. A cross-reference matrix showing the tracking of Government performance requirements to the Offeror's proposed system performance specification (i.e., traceability). The specification should be structured for the proposed system solution and not restricted by the structure of the Government's preliminary system performance specification. Include cross-reference to verification methods.

3.2.2 Management Factor Evaluation

The sixteen technical management and technical processes, as defined in the DAG § 4.2) are as follows:

Technical Management Processes	**Technical Processes**
Decision Analysis	Requirements Development
Technical Planning	Logical Analysis
Technical Assessment	Design Solutions
Requirements Management	Implementation
Risk Management	Integration
Configuration Management	Verification
Data Management	Validation
Interface Management	Transition

These processes are normally evaluated using a combination of the offeror's proposal documents. An offeror is expected to define a tailored, as appropriate, set of technical and management processes, usually based on its' own set of mature enterprise processes. These processes are usually correlated with industry-wide recognized standards and best practices. One well known approach is based the Capability Maturity Model Integration (CMMI), which has been particularly useful in process improvement initiatives. The acquisition evaluation team is cautioned that there is risk in accepting the applicability of an organizations' "CMMI maturity (or capability) level rating" to future program team's and efforts. Future performance is driven by a large spectrum of issues such as specific suppliers/vendors and compatibility of their respective corporate processes, interaction of different corporate units within and across suppliers, the amount of new-hires versus existing staff that will be assigned to the contract, timing and intensity of training, for all team members, applicability of domain-specific knowledge as a performance factor, and the extent with which corporate processes will be applied to the new work.

In this guide, suggested technical management Section M evaluation factors are presented in an integrated example (see Table 3-6). These factors will correlate with appropriate samples prepared individually for proposal content in Tables 3-7 to 3-10.

Table 3-6 Sample Integrated Evaluation Factors for Technical Management

This factor (subfactor) is met when the Offeror's proposal demonstrates:

1. The program tasks in the SOW are fully identified and include the technical tasks.
2. Technical planning is complete and supports implementation of the program's technical approach and accomplishment of the requirements and objectives contained in the RFP.
3. Technical and technical management processes are implemented across the program team, using appropriate and adequate tools.
4. The Offeror has implemented a technical baseline approach (functional, allocated, and product baselines) that support the program's technical approach. Data and software rights are clearly explained.
5. Technical processes are mature and stable and represent the Offeror's application of corporate enterprise processes and lessons learned.
6. Approach, tasks, processes, and procedures are flowed down to the subcontractors, vendors, and lowest level suppliers, as appropriate.
7. A trained workforce (familiar with the processes, practices, procedures, and tools) is available and in place to ensure accomplishment of the work.
8. Required professional certifications (such as IA required by DoDD 8570.1) are held by offered personnel.
9. Technical events are included in the IMP/IMS and reflect the technical approach.
10. The IMP narratives include the technical and technical management processes and sub-processes (as appropriate).
11. The IMS clearly indicates the program's critical path(s) and has acceptable schedule risk.
12. Technical reviews are identified; explicit entry and exit criteria; participation established; and have the timing and frequency necessary to monitor and control technical baseline maturity and risk mitigation.
13. There is a single technical authority that is responsible for program technical direction. The lines of responsibility and authority are clearly established.
14. Key personnel are assigned and personnel resources identified.
15. The role of the Government (program office, supporting Government organizations, and user) along with the key subcontractors has been identified.
16. Program IPTs are established that involve program participants and stakeholders for all Life Cycle phases and identify roles and responsibilities.
17. Program-specific plans represent a sound integrated technical approach. The plans are flowed down to the teammates, subcontractors, vendors, and lowest level suppliers on the program. The planning is integrated across the SOW, SEP, IMP/IMS, and other program management plans and processes to support critical path analysis, EVM, and risk management.
18. The Offeror's SEP should thoroughly document the Offeror's technical approach to the integrated set of program requirements, technical staffing and organization planning, technical baseline management planning, technical review planning, and the integration with overall management of the program. It should clearly show how it is integrated, consistent, and aligned (but more detailed) with respect to the Government's SEP.
19. Proactive, disciplined SE technical management process leading indicators that provide a picture of future course that a program is likely to follow. The indicators should be measurable, map to incentive strategies and result in early identification and mitigation of risk.

More specific technical suggestions for individual proposal content (per Instructions in Section L) examples are presented for each of the following subsections of a typical proposal, i.e., SOW, SEP, IMP/IMS, and IMS Narratives for the Management Volume.

3.2.2.1   Offeror's Statement of Work (SOW)

The offeror responds to the RFP with a SOW [Note: also referred to as the Contractor's SOW (CSOW)] that addresses the objectives stated in the Government's SOO or SOW, other sections of the RFP, and derived requirements based on the offeror's approach. The SOW defines tasks and activities that the offeror proposes to execute under the contract. The technical approach relies heavily on contractor's processes and practices, and the SOW should address the application of the processes during the design, development, test, manufacture, delivery, and sustainment, as applicable to the program. It is generally not the intent to incorporate the contractor's detailed processes and practices into contract. Since the SOW will become a baseline for the resulting contract, it should be thoroughly reviewed to ensure it adequately addresses all the work to be accomplished during the program. Table 3-7 provides sample proposal content to be placed in Section L language for the SOW.

Table 3-7 Sample Technical Proposal Content for SOW

The Offeror shall provide a SOW to be included in the negotiated contract. (In the case where the Government provided a SOW with the RFP, the Offeror may propose changes; however, each change shall be accompanied by supporting rationale demonstrating why accepting the proposed change is in the Government's interest.) The SOW shall:
1. Describe the technical work, tasks, and activities to be accomplished on the program that reflect the technical approach to the program as described in the Offeror's SEP.
2. Reflect use of technical and technical management processes across the program that are critical for program success.
3. Address the technical baseline management process (functional, allocated, and product baselines).
4. Address delivery of, and describe the Government's rights in, all required technical data and computer software.
5. Provide for event-based technical reviews with entry and exit criteria and independent SME participation.
6. Provide for technical planning and the Offeror's integrated SEP updates and continuous process improvement consistent with corporate improvements and program needs. Explain how performance requirements will be verified.
7. Discuss the Offeror's SOW as structured for the proposed system solution and not restricted by the structure of the Government's SOO or SOW. This is correlated and consistent with the integrated WBS, IMP, IMS, and EVMS.

3.2.2.2   Offeror's Systems Engineering Plan (SEP)

The offeror should consider the Government's planned technical management strategy and approach, as reflected in the Government SEP, to prepare their proposals including their own integrated SEP. As a result, many elements of the Government's SE strategy will be reflected within the contract documents (e.g., SEP, SOW, CDRL, IMP, IMS, and WBS). It is suggested

that instructions for the offeror's SEP (see Table 3-8) in Section L include the requirement for the offerors to provide a matrix that correlates the Government SEP with the offeror's SEP, contractual documents, and other volumes of the proposal where SEP amplifying information is discussed.

Table 3-8 Sample Technical Proposal Content for SEP

The Offeror shall submit a SEP that describes their integrated technical approach to the program. The Offeror's SEP shall include:

1. The entire contract - related requirements, tasks, activities, and responsibilities included in the Government SEP, as they relate to this solicitation, shall be in alignment. If the Offeror elects to change or revise the planned technical approach described in the Government's SEP, the rationale for the change shall be provided.
2. A description of the key technical and technical management processes. Provide Offeror's (and teammates, subcontractors, etc.) plans for continued process improvement.
3. Flow down of technical and technical management plans and processes to the subcontractors or teammates, and how they participate in the processes.
4. An event-based program plan (correlated and consistent with the IMP) for the efforts involved with the design, development, test, production, and sustainment, including planned block upgrades, technology insertion, etc.
5. Planned technical reviews with entry and exit criteria and independent SME participation.
6. Identity of the technical authority, stakeholders, and functional technical authorities on the program and the limit and scope of their responsibilities.
7. A description of the technical organization within the program IPT structure identifying roles and responsibilities, key personnel, and technical staffing requirements. Identify the primary participants within each IPT and the supporting participants to include the Government and subcontractors. Include a summary of the principle products of the IPTs. Include a description of technical working groups (or IPTs) with roles, responsibilities, and proposed participants (e.g., Interface Working Group, T&E Working Group, and Technology Roadmap Working Group).
8. Integration of the technical and technical management processes with IMP/IMS and EVM processes.
9. A summary description of the proposed set of program planning and specific plans such as SEP, TEMP, ISP, Software Development Plan, PSP, Risk Management Plan, etc., to ensure consistency and completeness.
10. A matrix that correlates the Government SEP, with the Offeror's integrated SEP, proposed contractual documents (SOW, IMP/IMS, WBS), and other volumes of the proposal where SEP amplifying information is discussed.

3.2.2.3   Integrated Master Plan/Integrated Master Schedule (IMP/IMS)

The RFP should contain a Government Roadmap Schedule (IMP/IMS § 3.1.1) that depicts the major program elements and key milestones, such as contract award, event-based technical reviews, technical baseline development and lock down, developmental test and evaluation (DT&E), operational test and evaluation (OT&E), production or long lead decisions, and system delivery. Typically, most of the events contained in the program IMP are based on technical activities and normally include the SDD items that are described in the DAG § 4.3.3.

The IMP and IMS should clearly demonstrate that the program is executable within schedule and cost constraints and with acceptable risk. They should provide a functionally-integrated picture of the proposed program with a direct correlation between the event-driven activities in the IMP/IMS and the SOW and CWBS planned technical approach documented in the SEP (see Table 3-9). Thus, the IMP/IMS and SEP are key elements during the proposal evaluation and source selection. Finally, the IMP/IMS must be correlated and consistent with the defined CWBS and EVMS.

Table 3-9 Sample Technical Proposal Content for IMP/IMS

The Offeror shall submit an IMP that is structured as an event-based schedule. Technical reviews applicable to the contracted event shall be included as events. The maturity of the technical performance approach as well as status of risk action plans will be reviewed. The IMP shall include events, accomplishments that tie to these events and completion criteria for each accomplishment for the total contracted effort. Any block upgrades and technology insertions identified as options for this contracted effort shall also be included.

The Government Top Level Program Plan and Schedule and SEP, included in this RFP, define a minimum set of technical events to be included in the proposed IMP. Criteria for entry into any technical event will be tied to the associated accomplishment completion criteria. The Offeror may include additional technical events with associated accomplishments and completion criteria or more rigorous completion criteria as required.

The IMS shall include the program schedule with technical tasks and activities necessary to complete the work effort scoped within the IMP. The program's critical path(s), based on critical path analyses, shall be identified in the IMS. The results of a schedule risk assessment shall be presented which reflect acceptable schedule risk. [Note: It is not uncommon for the Government to specify a minimum schedule risk value, such as, 80 percent probability of achieving the key event(s) with 80 percent confidence.] If the assessment concludes that schedule risk is unacceptable, the Offeror should adjust the schedule or include risk mitigation efforts.

Finally, the IMS association with the EVMS shall be summarized; and will be addressed in the Cost Volume also.

Some programs may require a Process Narrative Section with an IMP. Sample text is provided in Table 3-10. [Note: A technical narrative may not be necessary since the offeror's required integrated SEP will probably cover the appropriate narrative information (IMP/IMS § 3.3.3).]

Table 3-10 Sample Proposal Content for IMP Narratives

The Offeror shall include within the IMP process narratives a brief synopsis of the Offeror's systems engineering and technical processes considered essential for program success. The narratives shall reference the Offeror's corporate processes and best practices and indicate how they will be applied and tailored to the specific program.

3.2.2.4   Other Technical Management Criteria

The Management Volume can also be used to highlight specific technical management topics that are discriminators for the source selection. These topics are those the Government seeks added information or data for the evaluation over and above what has been addressed in the previous sections on the SOW, SEP, and IMP/IMS (see Table 3-11). These criteria should not be used to systematically address all technical and management processes to be used on the program (these should have been included in the SEP or IMP narratives). This is why it's important that an experience systems engineer also be on the Management Factor evaluation team.

Table 3-11 Sample Technical Proposal Content for Other Management Criteria

The Offeror shall submit a Management Volume that describes the key technical processes and how they are integrated with the other management, financial, and functional processes. Examples of technical topics for special emphasis in the Management Volume include:
1. FoS and SoS issues and integration approach and net-centric operation requirements.
2. Program organization, roles and responsibilities of IPTs, and specifically the SEIPT.(see also Table 3-8, #7)
3. The electronic or virtual program approach including data and information exchange (see also Table 3-7 #2 and Table 3-8 #2 and #8).
4. Discussion of risk management and configuration management approaches.(see also Tables 3-7 #2 and #3, 3-8 #2, #3, and #9)
5. Facilities for design, development, and testing.
6. M&S processes, M&S fidelity, special facilities, M&S support tools, and past applications. [Note: this is a "specialty" SE example] (see also Table 3-7 #2)
7. Résumés and past experience for the technical leadership and key technical personnel (see also Table 3-8 #7).
8. Discussion of program staffing requirements, surge capability, personnel recruiting, and program ramp-up activities at program start (see also Table 3-8 #7).
9. Discussion of special engineering requirements and processes such as, security engineering, safety, flight certification, survivability/vulnerability, human systems integration (HSI), interoperability, spectrum considerations, information system security (e.g., IA) (see also Tables 3-7 #1, and 3-8 #1).
10. Obsolescence requirements growth plans and technology insertion upgrade plans (see also Tables 3-7 #1 and 3-8 #4).

3.2.3   Past Performance Factor Evaluation

The Government uses the past performance record to demonstrate that the offeror possesses the skill and experience to perform well and achieve the performance requirements on the new contract. An offeror with experienced personnel in the applicable domain, bolstered with a credible past performance record, should result in better contract performance (e.g., lower risk and cost while still achieving the user's performance requirements) (FAR § 42.15, and FAR § 15.305 as supplemented). The source selection team should relate each offeror's past performance record to the Source Selection Authority (SSA) in a manner that facilitates an integrated assessment with the remainder (e.g., Technical, Management) of the offeror's proposal.

While there is a direct relationship between past performance and the technical factors, each of these evaluations must stand on its own merit, is reported separately, and cannot change the other. For example, the technical evaluation on software could show no major weaknesses while the past performance evaluation could reveal unsatisfactory past performance.

It is recommended that the past performance evaluation group start with the Past Performance Information Retrieval System (PPIRS) for past performance information. Most past performance assessments utilize a questionnaire that requests specific information about an offeror's performance from their previous customers. The respondent may be asked to provide a rating ranging from "Exceptional" to "Unacceptable" or "N/A" and provide a brief explanation of the rating. This allows for the questionnaire to be filled out quickly and easily, but the *key to a useful assessment is the evaluation of respondents' comments and rationale for the rating*. Another means to collect the data is for past performance evaluators to contact the respondents and complete the questionnaire via a discussion or interview. The DCMA should be invited to participate in this source selection activity, as determined by the CO or SSA.

3.2.4 Proposal Evaluation

The proposal must be responsive to the Section L, Instructions to Offeror. The SSEB (see Figure 2-3) can only use the Section M Evaluation Factors included in the RFP. No other criteria can be used in the source selection process, just as no outside material other than that submitted with the proposal can be used (except for Past Performance). The SSEB will be exercising their judgment and critical thinking when making a selection and this is best served using experienced personnel that have domain experience, technical expertise, and program knowledge. *Appendix A* contains additional tips that can aid in the evaluation of the technical (Table A-1), management (Table A-2), and past performance factors (Table A-3).

3.2.5 Cost Factor Evaluation

The cost evaluation should address evaluation of cost reasonableness, realism, and risk. The effective and useful evaluation of cost can best be accomplished when it is supported by technical personnel who:

> (1) have technical knowledge in the relevant domain;
> (2) have past, hands-on experience;
> (3) are familiar with the scope and objectives of the program; and
> (4) recognize the interdependencies of cost, schedule, and technical performance.

In a proposal, the Basis of Estimate (BOE) supporting rationale and associated assumptions should be based upon meaningful analysis, credible historical data, past experience, and expert judgment. The Government's most probable cost relies on the identification of weaknesses within the proposal (e.g., inconsistencies between the technical approach and the assumptions listed in the BOE) and the computation of adjustments to the offeror's proposed cost or price. Price factors for commercial services or products are also addressed, as appropriate. The technical portion of the cost evaluation tips are contained in Appendix A (Table A-4).

There should be specific and comprehensive two-way communication about significant differences between the offerors proposed costs or prices, and the Government's most probable cost estimates of these costs or prices. The goal of these discussions is to fully understand the

reasons for, and the magnitude of, the differences between an offeror's proposed costs or prices and the Government most probable cost estimate, including key cost elements.

3.2.6 Proposal Risk Assessment Evaluation

The proposal risk assessment is typically reported at the factor level, i.e., technical and management; however, there is an option to report the risks at the subfactor level. The SSEB has two options when conducting the proposal risk assessment. The first method is to accomplish the proposal risk assessment for each factor or subfactor. In this case the final evaluation of the factor would have two components—a factor score (usually denoted in a color rating if used) and a proposal risk rating (ranging from "high risk" to "low risk").

The second method is to combine the factor rating and proposal risk rating together. In this case, for example, a blue ("exceeds standard" color rating) might be lowered to a green rating if it involves some risk. In an extreme case, a blue rating might be lowered to yellow or red if the risk is determined to be high. In both cases the proposal risk assessment essentially answers the following question. *If the offeror does (or delivers) what he proposes, what is the risk that he will not succeed, i.e., not meet key performance and other critical requirements within schedule and resource constraints?*

This assessment establishes the risk associated with the offeror's proposed program to include the technical approach, technical performance, management approach, application and integration of management and technical processes, program schedule, and cost/resource allocations. The technical portion of the proposal risk evaluation tips are contained in Appendix A (Table A-5).

4 CONTRACT EXECUTION

During the first few weeks after contract award it is important the Government and contractor team have an interactive, face-to-face meeting and that the technical leaders step forward and set the tone for the program. Three important program activities immediately after contract award are the Post Award Conference (see Table 4-1 and FAR § 42.5), the Integrated Baseline Review (IBR) (see Table 4-2 and also The Program Managers' Guide to the Integrated Baseline Review (IBR) Process and DAG §11.3.1.3), and SEP Integration (see Table 4-3),

Table 4-1 Systems Engineering Tasks during Post Award Conference

1. Reinforce the importance of having the Government and contractor engineering personnel functioning as an integrated team, while recognizing the responsibilities that inherently reside with contractor (executing the contract), the Government Program Office (program leadership and contract oversight), the user, and DCMA.
2. Review the program technical approach and the plan for alignment of the Government SEP (included in the RFP) with the contractor's inputs to the Government SEP. Validate technical tasks within the SOW.
3. Review the system performance specification to ensure a mutual understanding of the functional baseline.
4. Reinforce the importance of leveraging the contractor's domain expertise and implementing the contractor's "enterprise" technical and technical management processes as documented in the proposal SEP.
5. Review and establish the initial set of metrics and measures (the baseline) that will be used to monitor and control the program.
6. Review risk management planning and the Risk Management Plan, if applicable, and the baseline of the program risks. [*Note: Program risks include both Government and contractor risks.*] Review the risk mitigation plans.
7. Review plans for event-based technical reviews (along with entry and exit criteria and independent SME participation) documented in the IMP and proposal SEP; review the technical tasks and products resulting from the IMS tasks; and ensure correlation of the technical metrics and measures, IMP/IMS, and the EVMS in preparation for the Integrated Baseline Review (IBR).
8. Review and discuss the issues and concerns identified during source selection to ensure they are understood and any issues are resolved.

Table 4-2 Technical Tasks during the IBR

1. Review critical milestones and early program support.
2. Verify the technical approach of the program. Ratify the entry and exit criteria for program events by reviewing the events, accomplishments, and criteria in the IMP.
3. Establish the IMS tasks to support the program. Task durations, resources, and interrelationships should be reviewed and understood.
4. Review the risk management process, establishing the baseline and mitigation plans.
5. Verify acceptance of the integrated Program SEP. Establish the plan for future updates.
6. Actively participate with the financial personnel to establish the EVM baseline. Verify that the EVMS is certified.

Presuming that the RFP required the submittal of an offeror's SEP, then the actions to consolidate the Government and offeror's SEPs into a joint, Program SEP should be accomplished immediately after contract award (see Table 4-3).

Table 4-3 Establishing the Integrated Program SEP

The following general approach to achieving an integrated (i.e., aligned) Program SEP is recommended: Immediately after contract award, the entire program team leadership should establish an integrated Program SEP to reflect both the Government and industry efforts on the program. This integrated Program SEP will usually be two documents – the Government SEP and the contractor integrated (the latter being a CDRL). Together, they guide all program stakeholders as to the technical aspects of the program.

The recommended approach to transition the Government SEP into an integrated Program SEP (Government and industry) involves a continuum of activity that begins during RFP preparation and continues through source selection, contract award, and initial program start up activities (see Figure 4-1).
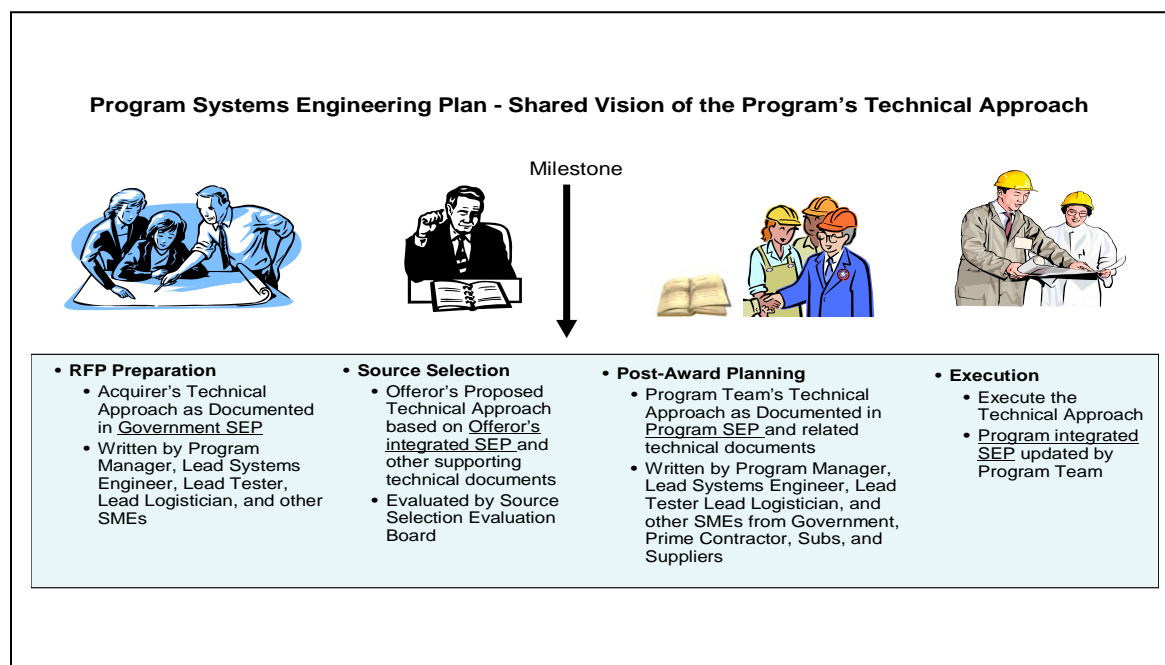
Program Systems Engineering Plan - Shared Vision of the Program's Technical Approach

Milestone

- **RFP Preparation**
  - Acquirer's Technical Approach as Documented in Government SEP
  - Written by Program Manager, Lead Systems Engineer, Lead Tester, Lead Logistician, and other SMEs
- **Source Selection**
  - Offeror's Proposed Technical Approach based on Offeror's integrated SEP and other supporting technical documents
  - Evaluated by Source Selection Evaluation Board
- **Post-Award Planning**
  - Program Team's Technical Approach as Documented in Program SEP and related technical documents
  - Written by Program Manager, Lead Systems Engineer, Lead Tester Lead Logistician, and other SMEs from Government, Prime Contractor, Subs, and Suppliers
- **Execution**
  - Execute the Technical Approach
  - Program integrated SEP updated by Program Team

Figure 4-1 Establishing an Integrated Program SEP

Although this guide is focus particularly on solicitation and contract award, administering the contract throughout the contract period is also important. From the program's perspective, the Program SEP, and supporting documentation (e.g., Risk Management Plan, TEMP, ISP), is the basis to monitor and control the program (including contractors) activities and performance. DCMA should be involved, particularly with respect to FAR § 42.302 on contract administration. The following are particularly relevant to SE activities:

- Perform engineering surveillance to assess compliance with contractual terms for schedule, cost, and technical performance in the areas of design, development and production.

- Evaluate for adequacy and perform surveillance of contractor engineering efforts and management systems that relate to design development, production, engineering changes, subcontractors, tests, management of engineering resources, reliability, maintainability, data control systems, configuration management and independent research and development.

- Review and analyze contractor proposed engineering design studies; submit comments and recommendations to the CO.

These SE activities are well addressed in the DAG's SE technical and management processes, particularly Technical Assessment (see also Section 3.2.2 of this guide).

APPENDIX A. DEVELOPMENT OF SE INPUT TO SECTIONS M, L, AND PROPOSAL EVALUATION

Table A-1 through Table A-5 contain sample questions that can aid the program teams in development of technical aspects to include in Section M and Section L for the RFP; and the subsequent evaluation of proposals during the source selection.

Table A-1 Technical Focus for the Technical Factor Evaluation

Technical Factor Reference Sections 3.2.1 and 3.2.4
1. Does the product offering (technical solution) meet performance and sustainment requirements? Does it exceed the requirements, and is this of value to the Government?
2. Does the product reflect the required special design considerations, such as, MOSA, safety, information security, net-centric operations, etc?
3. Are all the critical or key requirements included within the specification? (Watch for "parroting" of the Government requirements without regard to substantiating evidence in the other sections of the proposal. A claim of performance without substantiating data is a technical risk.)
4. Are the goals appropriately identified and differentiated from firm requirements? (Goals do not have much standing as contract performance requirements.)
5. Are specification requirements stated in performance language? Are there any SOW tasks or data deliveries in the specification?
6. Is the specification's Verification and Test Section more detailed than just a table reflecting only a method of verification? Is there a one-to-one correlation with the Performance Requirements? Is the test section consistent with the engineering and test approach documented in other sections of the proposal?
7. Are the system interface requirements identified and documented? Do they reflect the requisite SoS and FoS interoperability and interface requirements, as appropriate?
8. Do the analyses, modeling and simulations, and trade studies support design decisions and technical approach to the program? Is the effort comprehensive (i.e., include relevant solutions, technologies, and alternatives) and address the areas of technical, cost, schedule, and risk?
9. Does the technical approach address all phases of the product life cycle (i.e., TLCSM) and effectively employ the precepts of System Operational Effectiveness (SOE) and System Design and Operational Effectiveness (SDOE)?
10. Are the resource/cost estimating factors and assumptions for technical work and products supported by the Offeror's domain experience and past performance?

Table A-2 Technical Focus for the Management Factor Evaluation

Statement of Work Reference 3.2.2.1 and 3.2.4

1. Does the SOW cover the entire scope of the program, including the requisite technical tasks and activities? Is it consistent with the program technical objectives in the SOO or SOW?
2. Does the SOW include inappropriate items on contract? (For example, Technical day-to-day procedures and instructions are captured in excessive detail and then, as they mature during the program, they cannot be implemented without a contract change.) The goal is to secure a commitment to implementing the process, not controlling detailed procedures.
3. Does the SOW identify specific IPTs that accomplish the tasks or include dates for start or completion of tasks? The dates and IPTs are identified in the IMS.
4. Does the SOW include tasks for conducting event-based technical reviews consistent with the program technical and support approach included in the Offeror's SEP?
5. Are all the appropriate technical management processes and technical processes included?

Systems Engineering Plan Reference 3.2.2.2 and 3.2.4

1. Does the Offeror's SEP expand and refine the Government SEP provided in the RFP? Is it responsive to the SEP Preparation Guide?
2. Are the corporate "enterprise" processes to be implemented on the program mature and stable? Is any tailoring or modifications to the processes appropriate to the program? Does the tailoring increase cost, schedule, or technical risk? Has the Offeror made a commitment and implemented plans for continuous process improvement?
3. Are the major technical reviews with entry and exit criteria and independent SMEs included in the SEP?
4. Has a single technical authority for the program been identified? Are the technical team's roles and responsibilities within the Offeror's proposed organization been clearly defined and assigned?
5. Has the skill, experience level, and corporate commitment of key technical personnel been identified? Are there sufficient manpower resources identified and available to support the program? Are plans for transition and personnel assignments in place for a smooth ramp-up of work tasks without risk of delay?
6. Have the key technical processes and technical management processes critical to program success been integrated with the program management processes and reflect the technical approach in the SEP (e.g., requirements management, technical baseline management and control, risk management, earned value management, supportability, etc.)?

IMP and IMS Reference 3.2.2.3 and 3.2.4

Reference IMP/IMS § 5.1.8 guide for detailed guidance for evaluation of an IMP and IMS.
1. Are the SOW tasks reflected in the IMP and IMS, especially the technical baseline management, verification, and validation tasks; and event-based technical reviews?

Other Management Criteria Reference 3.2.2.4 and 3.2.4

The Other Management Criteria proposal instructions should focus on other technical related topics that might be critical to program success, and each program should carefully select these special topics, ensuring they are important discriminators for the source. Examples of discriminating processes the Government might seek added details on include: risk management, configuration management and obsolescence and technology insertion planning. [Note: to the extent these are not adequately addressed in other sections of the proposal].

Table A-3 Technical Focus for the Past Performance Factor Evaluation

Past Performance Evaluation Reference 3.2.3 and 3.2.4
1. In the contracts that are "relevant" or "highly relevant," are the technical approach and domain clearly applicable to the proposed program? Are the contracts similar in scope; do they apply the same technical and technical management processes with successful results?   2. Is technical experience of teammates and subcontractors relevant to the allocation of technical tasks?   3. Do the responses to the past performance questionnaire show excellent systems engineering past performance? Do the responses support the Technical and Management Evaluation Criteria in Section M?   4. Have the systems engineering or technical element in Contractor Performance Assessment Reports (CPAR) been considered? Are there trends or systemic issues across several CPAR evaluations that indicate potential strengths and/or weaknesses in expected performance?   5. Do low CPAR elements have a "corrective action" plan between the Government customer and the contractor? Is the corrective action on schedule?

Table A-4 Technical Focus for the Cost Factor Evaluation

Cost Evaluation Reference 3.2.5
1. Does the cost estimate fully represent the scope of the technical requirements and address all the work and delivery requirements?   2. Do the cost estimates correlate with the proposed solution and technical approach? Is the program proposed cost estimate for the technical portions of the program reasonable and realistic based on your judgment, past experience, or technical knowledge? Are program cost, schedule, and performance balanced?   3. Are the processes, the organization, the technical tasks and products proposed in other sections of the proposal adequately resourced and included in the cost?   4. Are the technical manpower estimates and BOE adequate and reasonable for the organization, tasks, and schedule reflected in the IMP, IMS, and SOW? Does the skill level of the manpower reflect the complexity of the tasks? Is the BOE supporting rationale based upon credible historical data, past experience, or expert judgment?   5. Is the time phasing of the resources (manpower, facilities, and infrastructure) consistent with the IMP Events and the IMS tasks along with the technical approach in the SEP?   6. Are the costs consistent with their proposed technical work tasks, products, organization and personnel resources, and personnel experience level, CWBS, IMP, IMS, and SEP?
Technical Questions for the WBS Evaluation
1. Is the CWBS based on the deliverable products and services and integrated with the program organizational structure and the IMP?   2. Are the WBS elements clear and unambiguous? Does the WBS dictionary adequately describe the systems engineering activities included in other proposal documentation, such as the SOW, IMP, IMS, and SEP?   3. Are the WBS elements clearly and uniquely assigned within the proposed organization?

Table A-5 Technical Focus for the Proposal Risk Assessment Factor Evaluation

Proposal Risk Assessment Reference 3.2.6

1. Are technical claims of performance supported by credible analyses, trade studies, or modeling and simulation results?
2. Does the Offeror's domain experience support the program approach and the technical challenges on the program? Have experienced personnel been proposed to lead the technical activities and organization?
3. Are the technical and technical management processes mature and stable, and are the modifications to the corporate processes appropriate to the program? Do the processes (or lack of processes) introduce risk into the program?
4. Are there corporate plans in place for continued process improvement?
5. Have the key technical and technical management processes determined critical to program success been integrated into the program management and technical approach (e.g., configuration management, requirements management, technical baseline control, risk management, technology insertion/obsolescence planning, modeling and simulation planning)? Are these flowed down to teammates, subcontractors, vendors, and suppliers, as appropriate?
6. Are the technical and technical management processes integrated with the other program management processes (EVMS, IMP, IMS, and CWBS)?
7. Have the technical risks been evaluated with respect to their relationship to the program's critical path(s)? Are the risk mitigation tasks included in the IMS? Are the risk mitigation tasks reasonable, complete, and appropriate for the risk?
8. Is the program schedule reasonable and realistic? Is it consistent with the planned execution of the program as stated in the IMP, IMS, and SEP? Have the activities on and near the critical path been evaluated?

APPENDIX B. APPLICABLE REFERENCES

Acquisition Community Connection (ACC) Practice Center
(https://acc.dau.mil/CommunityBrowser.aspx)
Amplifying DoDD 5000.1 Regarding Modular Open Systems Approach Implementation;
USD(AT&L), 5 April 2004
http://akss.dau.mil/docs/wynn_memo,%205000.1%20and%20MOSA.pdf
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 (http://www.amc.army.mil/amc/rda/rda-ap/docs/assg-2001.pdf)
Award Fee Contracts; USD (AT&L), 29 March 2006
(http://www.acq.osd.mil/dpap/policy/policyvault/2006-0334-DPAP.pdf)
Defense Acquisition Guidebook (DAG)
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Reliability and Reduced Logistics Footprint; OSD, 24 October 2003
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Defense Federal Acquisition Regulation Supplement (DFARS)
 (http://farsite.hill.af.mil/VFDFARA.HTM)
DoD Earned Value Management Implementation Guide (EVMIG)
(http://akss.dau.mil/guidebookalphabeticLinks.do?initialChar=E)
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(http://www.acq.osd.mil/ds/se/publications/pig/Implementing%20SE%20Plans%20In%20DoD
%20-%20Interim%20Guidance%20-%2030%20Mar%2004.pdf)
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MIL-HDBK-881A Work Breakdown Structure Handbook
 (http://www.acq.osd.mil/pm/currentpolicy/wbs/MIL_HDBK-
881A/MILHDBK881A/WebHelp3/MILHDBK881A.htm)
Navy SD-5, Market Research
 (http://www.ntsc.navy.mil/resources/library/acqguide/sd5.htm)
Operation of the Defense Acquisition System, DoDI 5000.2
(http://akss.dau.mil/dag/DoD5000.asp?view=document&doc=2)
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 (http://www.ntsc.navy.mil/resources/library/acqguide/PPI_Guide_2003_final.pdf)
Performance Based Acquisition (PBA), USD(AT&L), 6 Sep 2006
(https://acc.dau.mil/pba)

Policy for Systems Engineering in DoD, 20 February 2004
 (http://www.acq.osd.mil/ds/se/publications/pig/Policy for Systems Engineering in DoD - 20 Feb 04.pdf)
Policy Addendum for Systems Engineering, 22 October 2004
 (http://www.acq.osd.mil/ds/se/publications/pig/Policy Addendum for Systems Engineering - 22 Oct 04.pdf)
Program Manager's Guide: A Modular Open Systems Approach (MOSA) To Acquisition, Version 2.0, September 2004
 (http://www.acq.osd.mil/osjtf/pmguide.html)
Risk Management Guide for DOD Acquisition; 6th edition; version 1.0; August 2006
(http://www.acq.osd.mil/se/ed/publications/2006%20RM%20Guide%20%204%20Aug%2006%20%20final%20version.doc)
Seven Steps to Performance Based Services Acquisition
 (http://www.arnet.gov/comp/seven_steps/index.html)
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(http://www.acq.osd.mil/se/publications/pig/sep_prepguide_v1_2.pdf)
The Defense Acquisition System, DoDD 5000.1
(http://akss.dau.mil/dag/DoD5000.asp?view=document&doc=1)
The Program Managers' Guide to the Integrated Baseline Review (IBR) Process
 (http://www.acq.osd.mil/pm/ibrmats/IBR Documents/IBR_PM_Guide_April_2003.doc)

APPENDIX C. ABBREVIATIONS AND ACRONYMS

ACC   Acquisition Community Connection
AoA   Analysis of Alternatives
APB   Acquisition Program Baseline
ASR   Acquisition Strategy Report
AT&L   Acquisition, Technology and Logistics
A&T   Acquisition and Technology
BOE   Basis of Estimate
CDD   Capability Definition Document
CDR   Critical Design Review
CDRL   Contract Data Requirements List
CLIN   Contract Line Item Number
CM   Configuration Management
CMMI   Capability Maturity Model Integration
CO   Contracting Officer
CONOPS   Concept of Operations
COTS   Commercial-off-the-Shelf
CPAR   Contractor Performance Assessment Report
CPD   Capability Production Document
CR   Concept Refinement phase
CSOW   Contractor Statement Of Work
CWBS   Contract Work Breakdown Structure
DAG   Defense Acquisition Guidebook
DCMA   Defense Contract Management Agency
DFARS   Defense Federal Acquisition Regulation Supplement
DoD   Department of Defense
DT&E   Developmental Test and Evaluation
DUSD   Deputy Under Secretary of Defense
ED   Enterprise Development
EVM   Earned Value Management
EVMS   Earned Value Management System
FAR   Federal Acquisition Regulation
FCA   Functional Configuration audit
FoS   Family-of-Systems
GOTS   Government-off the-Shelf
HSI   Human System Interface
IA   Information Assurance
IT   Information Technology
IBR   Integrated Baseline Review
ICD   Initial Capabilities Document
ICE   Independent Cost Estimation
IDE   Integrated Development Environment
IMP   Integrated Master Plan
IMS   Integrated Master Schedule
IPT   Integrated Product Team

ISP	Integrated Support Plan
ISR	In Service Review
JCIDS	Joint Capabilities Integration and Development System
KPP	Key Performance Parameter
LSE	Lead (or Chief) Systems Engineer
MOSA	Modular Open Systems Approach
MR	Material Readiness
M&C	Monitor and Control
M&S	Modeling and Simulation
OCI	Organizational Conflict of Interest
OPR	Office of Primary Responsibility
OSD	Office of the Secretary of Defense
OTRR	Operational Test Readiness review
OT&E	Operational Test and Evaluation
OUSD	Office of the Under Secretary of Defense (AT&L)
O&S	Operations and Support phase
PBSA	Performance Based Services Acquisition
PCA	Physical Configuration Audit
PM	Program or Project Manger
PRR	Production Readiness Review
PPIRS	Past Performance Information Retrieval System
PSP	Product Support Plan
PSS	Product Support Strategy
PWS	Performance Work Statement
P&D	Production and Deployment phase
RFI	Request for Information
RFP	Request for Proposal
SDD	System Development and Demonstration phase
SDOE	System Design and Operational Effectiveness
SE	Systems Engineering
SEIPT	Systems Engineering IPT
SEP	Systems Engineering Plan
SEMP	Systems Engineering Management Plan
SME	Subject Matter Expert
SMR	Sustainment Material Readiness
SOE	System Operational Effectiveness
SOO	Statement of Objectives
SoS	System-of-Systems
SOW	Statement of Work
SPS	System Performance Specification
SSA	Source Selection Authority
SSE	Systems and Software Engineering
SSEB	Source Selection Evaluation Board
SSP	Source Selection Plan
SW	Software
SVR	System Verification Review

TD   Technology Development phase
TDS   Technology Development Strategy
TEMP   Test and Evaluation Master Plan
TES   Test and Evaluation Strategy
TLCSM   Total Life Cycle System Management
TRA   Technology Readiness Assessment
T&E   Test and Evaluation
WBS   Work Breakdown Structure